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TURKEY GROWING IN IDAHO

(Extension Bulletin No. 79, Revised)

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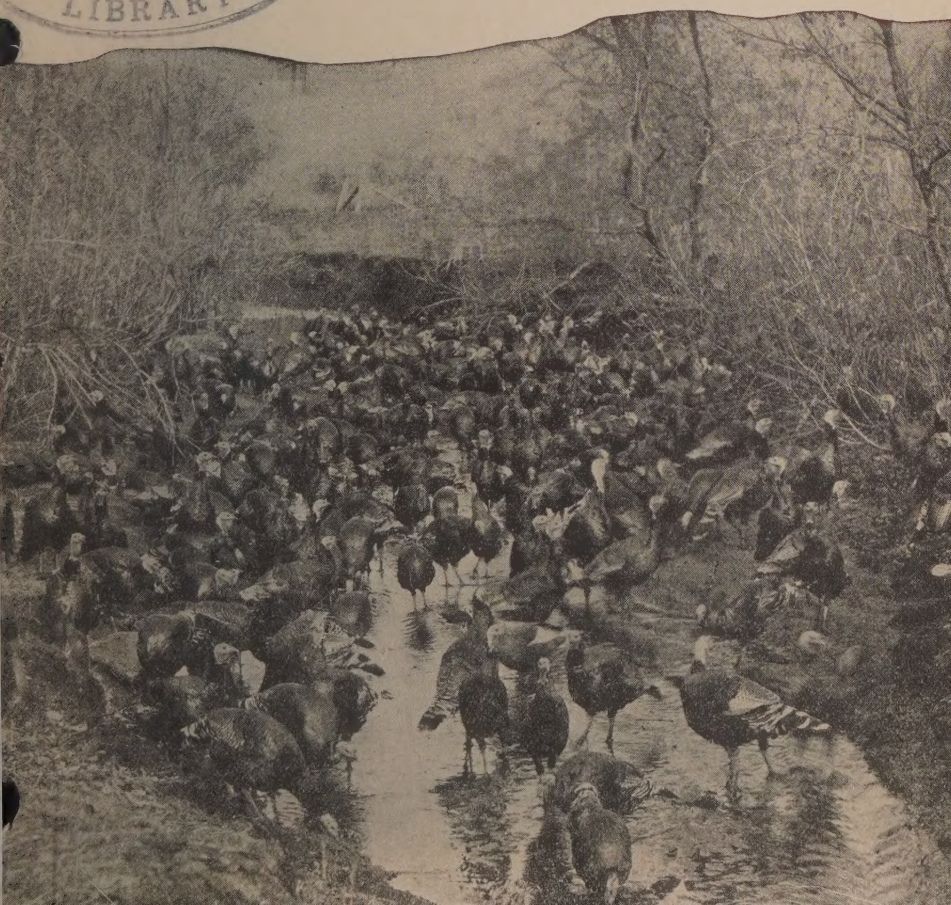

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E. J. IDDINGS, *Director*

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Summary

AMERICAN families regard the turkey as their holiday meat; therefore, the quality and finish must be the finest.

Two-year-old hens, or older, are better breeders than young ones.

Breeding stock that is nearest standard weight, if vigorous and conforming to the ideal for the breed, is best. Select breeding stock early. Keep the best.

Separate the breeding stock from the general flock before finishing the market stock is begun. Breeding stock must range freely and be furnished green feed.

The good turkey grower is a good feeder. Greens to the extent that turkeys will consume is a good feeding program.

Prepare nests out on the fields, on the ditchbanks or in the sagebrush.

Suitable equipment for turkeys is not expensive. It is poor economy to hatch poults and then lose them on account of poor or entire lack of equipment.

Do not give setting hens too many eggs. Make proper preparation for setting hens. They must be able to keep warm and must not be annoyed.

Sanitation is the controlling factor in maintaining the health of the flock.

Artificial turkey growing is a safe and economical practice when properly done.

If artificial brooding is practiced it must be done in small units. One hundred fifty poults to the unit are sufficient and a smaller number is much safer.

Poults should not be fed wet and sloppy feeds. Sour milk as drink and dry feed are much safer than to combine them into a wet mash.

Oyster shell and bone meal in liberal amounts and in the mash are necessary for proper bone development.

Poults require an abundance of succulent green feed. Feed cod liver oil. Give the poults a good start.

When poults are fully feathered and the weather will permit, put them on the range.

Provide ample and comfortable shade.

Do not permit poults to suffer from thirst. Start the finish for market with the first feed.

Most diseases are preventable. Sanitation, good management and proper feed are the important factors. Feed turkeys in troughs and hoppers. Never feed on the ground.

A practice that has proved successful should not be discarded until another is known to be better.

Turkey Growing In Idaho

By

PREN MOORE, C. E. LAMPMAN, DR. E. M. GILDOW, AND HOBART BERESFORD*

THE factors that may limit turkey growing in Idaho are insufficient range, inexperience, misleading information, poor breeding, indifference to details in practice, and poor finish of the market stock.

In order that the most satisfactory results may be obtained, it is important that the factors involved be understood. The most important are: (1) Breeding; (2) Condition of breeding stock; (3) Handling breeding stock for the breeding season; (4) Incubation; (5) Brooding; (6) Feeding the poults; (7) Range; (8) Disease control; (9) Sanitation; (10) Finish; (11) Killing and dressing; and (12) Marketing. Each factor has its influence in determining the condition of the stock when mature. Turkeys are grown for their value as meat. Egg production is a consideration only as it affects reproduction.

The purpose of this bulletin is to encourage economy in production, improvement of quality, satisfactory and general stabilization of the turkey industry, and to give information that will assist growers to achieve these objectives.

PRICE FLUCTUATIONS

The nature of the industry appears to stimulate abnormal inflation and reduction in production. Turkey prices fluctuate from year to year. Prices apparently rotate in rather irregular cycles. Supply and demand are the natural influences, the latter often controlled by industrial conditions. A short supply may be adversely affected by a general labor strike or other industrial disturbances. Interest in production increases with advancement in price. Periods of high price bring new growers. At such times many people plunge in on a large scale without previous experience. It is not uncommon to see people with no experience start with a flock amply large for those with much experience. The successful grower is the one who develops slowly or in proportion to his accumulation of information and experience. To be successful, one must be able to ride the price waves. Ordinarily it is safest to increase volume when the price cycle is at the low point. The crop is almost sure to be short immediately following low prices. Prices fluctuate and no one appears to be able accurately to forecast low markets. A steady, substantial development of the turkey industry in Idaho appears safe for anyone interested.

IDAHO CONDITIONS FAVORABLE FOR TURKEYS

Idaho has every natural advantage for turkey growing. The extent to which the industry may be developed in the state is limited only by

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location and by the inclination and ability of the persons interested. In southern Idaho the land is gravelly in character. There are wide expanses of range where feed is abundant; the growing season is long; spring comes early, is usually dry, and there is abundance of sunshine. Southern Idaho is favored with exceptionally early hatching seasons, which are an advantage when compared with many other sections where turkeys are grown.

Idaho turkeys are of a superior quality. No other section produces finer quality and there are few that grow as fine. There appears to be an element in this high altitude intermountain country which contributes to the development of very fine meated and especially high quality turkeys. The national crop may be large at times, but it seems probable that Idaho quality always will bring a premium. Low grade stock is always a drag on the market and inferior Idaho turkeys are probably no better than the same stock of any other section. The problem of Idaho turkey growers, therefore, is to grow the high quality stock which this state is capable of producing.

Turkey mortality each year is very great. This is true, not only of poults, but of breeding stock. Turkey growers need to improve the quality of the stock and to reduce mortality. Should the practices recommended herein differ from those in use by a grower who has been successful over a period of years, it is advised that he be reluctant to change until he knows from experience that these methods are better than his own and that the changes will be advantageous.

CONSUMER DEMAND

Turkeys may be regarded as a luxury. American families regard the turkey as their holiday meat. They are also used on other festival occasions and at banquets and are on the menu of the more fashionable hotels and restaurants at other seasons. It is obvious that turkeys have now become an all-season meat for special occasions. It is, however, the fancy turkey that is most in demand. There is a spread of from 7 to 10 cents between prime quality and the low grade, and at times the spread is even more. It is obvious, therefore, that the producer's interest is best served when the bulk of his stock grades prime.

THE BREEDING FLOCK

The turkey industry has two natural divisions: (1) Purebred Flocks; and (2) Commercial Flocks. The purebred flock is necessarily a small unit. The commercial flock may consist of any number and is limited only by available range, feed, the grower's inclination and the available help.

Purebred Flocks

Purebred flocks are the source of breeding stock for the commercial flocks. Pure breeding involves intensive practices. Known ancestry is essential. It is necessary, therefore, that the stock be mated in small units. The object of purebred breeders is to standardize the stock. Each breed has a weight and color standard. Weight is of the greatest economic importance. Color is important, in that fine color marking is an indication of purity in breeding. The purebred breeder must

strive for uniformity in weight. The closer individuals of a breed conform to the standard weight for the breed, the more valuable they are for breeders, providing they are healthy and vigorous.

By proper selection of breeding stock, a breed may be so standardized as to become quite uniform in size, shape or type, quality and general conformation. Extremes must be avoided when selecting breeding stock. Breeding females and males must be as near as possible to standard in all respects. By the use of standard toms on undersized flocks the size may be brought up to the standard for the breed in a few generations, often in two or three. However, it is not practical to use over-sized males to correct the deficiency of under-size in any flock. Over-sized toms produce stock that is too leggy, flat bodied and slow to finish. Stock that is standard matures and finishes quickly.

All breeds of turkeys have a standard for weight, and deviation in weight from the standard tends to lower the value. The standard weights for the breeds are as follows:

Breed	Young Toms	Yearling Toms	Aged Toms	Pullets	Hens
Bronze	25 lbs.	33 lbs.	36 lbs.	16 lbs.	20 lbs.
Narragansetts	23 lbs.	30 lbs.	33 lbs.	14 lbs.	18 lbs.
White Hollands	23 lbs.	30 lbs.	33 lbs.	14 lbs.	18 lbs.
Bourbon Reds	23 lbs.	30 lbs.	33 lbs.	14 lbs.	18 lbs.

Age of Breeding Stock

Mature hens are better breeders than young ones. The older hens may not lay as many eggs as will young ones, but they will produce stronger poults and the stock will be more uniform in quality and finish. It is necessary, however, to use some young hens each year for breeders in order to keep the flock up to the number desired. Just how long a turkey hen should be kept for a breeder must be determined by her usefulness. The breeding value of any individual is determined by her ability to reproduce and by the quality of her offspring. A good breeder should be maintained in the flock as long as it is useful. This should be determined each year. In commercial flocks, however, it is a good practice to dispose of breeding hens after the second breeding season. Therefore, in commercial flocks a little more than one-half of the breeding hens each year are pullets. The same rule as the one used for females must determine the age to which males should be maintained in the breeding flock. A tom that is a good breeder should be kept in the flock as long as he is vigorous and active. Two years is long enough to keep breeding males in a commercial flock. It is a good practice, however, to use all old or all young toms in commercial flocks.

Number of Hens to Tom

In the commercial flock from 15 to 20 hens to one tom is safe. Purebred flocks are usually mated in smaller numbers. Males and females are mated with a fixed breeding purpose in view. Some mate as few as five and six hens to a tom and occasionally a pair mating is made. The good breeder is continually striving to effect improvement. Many special matings are made with a view of intensifying the good

qualities of a few individuals. By small matings the results may be more definitely known and the blood lines maintained. Turkey growers in general are dependent upon the purebred breeder for the improvement of the stock.

Selection of Breeding Stock

The purebred breeder uses only those individuals that conform to the ideal. Color, type and standard weight are the points for consideration. The commercial turkey grower may not be so concerned with fancy points in color. However, the desired color is an indication of purity and while color may not appeal to the imaginative as being important, it is a fact, nevertheless, that the specimen that conforms most nearly to standard color is likely to be more dependable as a breeder. It is not necessary that the hens in commercial flocks be purebred, but it is important that they conform to standard in type and weight. Purebred hens are an improvement. Breeding males that are purebred are always best for commercial flocks.

All breeding stock selected either for purebred flocks or for commercial flocks must be vigorous. Bone is essential. One should select strong, sturdy individuals and keep as near to standard as possible. The legs should be stout. Legs that are too short as well as the excessively tall birds are to be avoided. The individuals with large bones in the legs and flat bones in the shanks are best. Round shank bones are to be avoided. The toes must be large and well spread when the bird is standing on the ground. The thighs must be large and well muscled. Watch the bird walk and reject those that show a tendency to knock knees. Select the individuals that walk with a straight stride. Reject the birds that wabble when walking. Spring of rib, indicated by the width of the back just behind the wings is desired. Select for wide backs and broad, firm hips. The body must be deep, yet well muscled. The choice meat of a turkey is on the breast. Select the breeders with long, deep, broad breasts. The breast bone should be very long. Reject as breeders all birds with crooked breast bones. The head is an important adjunct to consider when selecting breeding stock. A deep, broad skull, a wide, stout beak, large brilliant eyes and a full, strong face are indications of vigor and ruggedness. Birds that have long, slim heads with hollows in front of eyes and small dull eyes are low in vitality and are not fit for breeders. The points covered herein apply both to males and females. The commercial turkey grower may sacrifice color but breeding stock that has vigor, standard type and weight is as necessary as feed to develop good market turkeys.

When to Select

Early maturity should be sought when selecting breeding stock. It is obvious, therefore, that the selection must be made at the time when the stock is reaching maturity. Eliminate all slow maturing birds. Rapid maturity is an indication of vitality; slow maturity an indication of physical weakness. The tendency to use slow maturing birds for breeding purposes must be overcome. The strong individuals must be mated together to insure the development of rugged strains of stock. A good practice is to make frequent selections, banding the most

promising individuals early and then, as defects become noticeable, the process of elimination may be applied. Select stock with a view to uniformity. Early selection makes it possible to eliminate off-types and abnormally large or small individuals.

Care of Breeding Stock

Separate breeding stock from the general flock before the finishing of the market stock is started. Range the breeding stock to themselves. Unlimited range that is free from contamination appears necessary. Arrange to feed away from the farm buildings and other poultry. Breeding stock appears to thrive best when roosting in the open air. However, some shelter is of value. A plan for perches is shown in Figure 5, page 31, which appears to be the most satisfactory roosting arrangement.

Nests. Most of the turkey-growing area of southern Idaho is destitute of wooded growth other than sage brush. It is necessary, therefore, to arrange nests for turkey hens. Some growers confine the hens to small areas during the laying season as a convenience in securing the eggs. It is necessary for the purebred breeder who has a number of small matings to handle the stock in a manner so as to keep them in separate groups as they are mated. If pedigreeing, some plan must be adopted which will make it possible to identify the eggs from the different individuals. Provision must be made for exercise and good sanitation. The space for each lot must be as large as conditions will permit. Suggestive nests along the ditch banks or out in the sage brush are advisable. Drive four stakes in the ground and box three sides with boards or burlap, leaving the south side open. Cover the top with boards and then cover all over with brush or straw. Dig a hole for the nest, and provide a liberal amount of straw or leaves. Herd the hens toward the nests and they usually will take to them at once. Feed and water troughs scattered over the nesting area tends to induce the hens to make wider use of the range. Drive a tall stake near each nest, tie a piece of cloth to it, and the nest will be easily found. Some hens will insist on going to stacks or farm buildings to lay. Permit them to follow their inclination at this time and obtain best results.

Gather the eggs each day. Eggs that are left in the nest may be destroyed by animals or chill and freeze. By gathering the eggs each day the hens are likely to lay longer before brooding.

Feeding Breeding Stock

Feed requirements for turkey breeding stock to produce satisfactory fertility, hatchability and strong livable offspring are essentially the same as for chicken breeding stock. A liberal amount of green feed which contains vitamin A is essential. Alfalfa, either green or cured, is very valuable in the ration as a vitamin A supplement. Separate the breeding stock from the general flock when starting to finish for the market. While breeding stock should be in good flesh, the soft meated requirement for prime market condition is detrimental to breeders. Breeding stock should be in medium and hard flesh and rather trim in appearance. Grain as feed may be sufficient during the

fall and early winter months. Some milk—either powdered or liquid —will improve the ration. Yellow corn in liberal amounts is very beneficial. Equal parts of corn, wheat and barley form an excellent mixture. Barley and sour skimmilk are fed by some turkey growers with excellent results. The barley is steam-rolled to increase palatability and to prevent waste. Barley is deficient in vitamin A. If barley constitutes the sole grain ration, more of a vitamin A supplement such as alfalfa must be fed.

Turkey hens will start laying earlier if they are fed a laying mash. Any good laying mash that is satisfactory for chicken hens is suitable for turkeys. Provide granulated bone and oyster shell in troughs where it will be convenient. Breeding stock should not be starved to avoid over-feeding on concentrates such as mash and grain. Plenty of green bulk will avert this danger. Better fertility and hatching results may be expected when ample green feed is supplied to breeding stock.

Alfalfa leaves for winter feeding are available to all of the turkey growers in Idaho. Fine-stemmed, leafy, well-cured alfalfa hay that has been chopped fine is good turkey feed. Chopped hay or leaves and blossoms in troughs or racks in addition to that in the mash should be provided to insure an ample supply.

Cod liver oil on the grain in the amount of one pint to each 100 pounds is a good feeding practice. An increased amount of cod liver oil to as much as one quart on each 100 pounds of grain may be necessary, especially during the short and dark days of winter and during the laying season. The increased amount of cod liver oil may be especially necessary if there is but little, if any, yellow corn in the ration. Mix the cod liver oil with the grain in the same manner as if treating for seed. It is best to mix not more than a ten-day supply at one time. Do all feeding in troughs and hoppers and never on the ground. Grown turkeys should have the troughs elevated to about knee high. It is a good plan to equip troughs with legs. If the troughs are not on legs, then they should be elevated on blocks or low saw horses.

INCUBATION

Natural Incubation

Natural incubation has been the common practice for hatching turkey eggs. Artificial incubation, however, is now becoming the most prevalent practice. A good practice is to set the turkey hens when they become broody and supplement them with either chicken hens or incubators or both. As soon as there is sufficient volume of eggs, set them. By the time they hatch there will likely be enough broody hens to take the poults. Turkey hens will usually mother poults after they have been broody but a few days.

When turkey hens are to be set, they should be moved to a place where they can be comfortable and are protected from annoyance by children or animals. The plan shown in Figures 7 and 8, pages 34 and 35, has proven very satisfactory as a battery in which to shelter turkey hens while setting. Each hen is in a compartment 3 feet wide by 8

feet long. She has the advantage of protection from wind and storm as well as from annoyance by animals or children. Each compartment is quite open, admitting sunlight and fresh air. The battery may be located at some convenient place. The plan may be enlarged to accommodate any number of hens.

After the hen has gone broody, allow her to sit for two or three days, or until she has demonstrated that she will stay with the nest before moving her to the battery. Always move broody hens after dark. Prepare the nest by scooping out a place in the ground and lining it with straw. Warm a few eggs and place in the nest. After the hen has set on these eggs for a few days, the turkey eggs may be placed under her. Turkey hens handled in this manner, seldom cause any trouble. Provide some grain for feed in each compartment. Some green feed is necessary also. Equip each compartment with a drink fountain, which may be an open can hung by a nail. Provide clean, fresh water each day.

Equipment is Necessary. Ordinarily the loss of poults is very heavy. The cause for most of the loss is lack of proper equipment. Suitable equipment need not be expensive. One good turkey will bring enough money to buy the material to build the necessary equipment for one hen. Losses of several hundred poults from a flock in a year are not infrequent. It is economy to build equipment and save the poults.

Number of Eggs for Hen. Eight to ten eggs for chicken hens and 13 to 18 for turkey hens are enough, depending upon the size of the hens, the season of the year, and the nest accommodations. Many poor hatches are the result of hens not being able to keep their eggs warm.

Remove Poults as They Hatch. If poults are left under the hens until the hatches are complete, many of them may be crushed. They may get out of the nest and attract neighboring hens and cause them to leave their nests. Take the poults to a warm room and keep them where they are certain to be warm and comfortable until the hatch is completed.

Artificial Incubation

Turkey eggs may be successfully hatched in incubators when the proper conditions of temperature, humidity, and ventilation, are provided. The routine of the incubator operation is much the same as for chicken eggs except the length of the period, which is 28 days. Eggs are turned from two to four times daily from the fourth to the twenty-fifth day in sectional type machines, and from the beginning until they are transferred to the hatching trays (usually the twenty-fourth day) in cabinet types. Some of the mechanical turning devices tend to work the small ends up, and in this case the operator should take precaution to turn them down once daily. If the small ends are left up in a position above the horizontal, numerous misplaced embryos will result.

The eggs may or may not be cooled, as desired. Cooling is not necessary where the temperature remains normal and is not practiced

in cabinet type incubators. In those incubators where the temperatures run high occasionally, it is advisable to cool eggs for a short period on such occasions.

Temperature. Turkey eggs require about the same temperature as hen eggs. In sectional type machines the bulb of the thermometer should be placed in the same relative position with regard to the top of the egg as it normally would be for hen eggs. This means that the thermometer should be elevated about three eighths of an inch above the level at which it is ordinarily operated for hen eggs, and in the average machine it should bring the thermometer in such position that the middle of the bulb is about 1⅞ inches above the bottom of the tray. In this position, the incubator should be operated at the temperature recommended by the manufacturer unless the operator has found it necessary to change. The following schedule is a general guide: first week—101½ to 102 degrees; second week—102 to 102½ degrees; third week -102½ to 103 degrees; and fourth week—103 to 103½ degrees; the last three days 103½. Another method sometimes used is to leave the height of the thermometer the same as for chicken eggs and operate the machine from ½ to 1 degree lower than is done for chicken eggs.

In cabinet type incubators the temperature is kept practically the same as for chicken eggs. Some operators seem to find it desirable to operate their machines at a slightly lower temperature.

Moisture. Moisture problems experienced in the artificial incubation of turkey eggs, appear to be due to either one of two extremes; that is, too little or too much moisture. The important features of the moisture problem are: (1) Moisture conditions which will promote the correct evaporation during the first 24 days; (2) A reliable guide by which to check evaporation during the 24 day period; (3) A condition of high humidity during the time that the poults are pipping and hatching out; and (4) Means of control and regulation of the humidity.

Correct Evaporation. The eggs themselves offer the best guide as to the correct evaporation, which in turn is influenced by the correct condition of humidity. Many failures are the result of attempting to follow mechanical instructions blindly without applying one's own good judgment in studying the condition of the eggs. The most accurate information on correct evaporation is obtained by computing the per cent loss of weight due to evaporation, the size of air cell at various periods, and the condition of the egg and poult during and at the end of the hatch. For the amateur or for one starting with equipment new to them, checking the evaporation by loss of weight, is probably the more accurate. This involves weighing one tray of eggs of each hatch from each compartment. The weighing should be done periodically and the loss of weight computed. The following tables give the per cent loss of weight for both 6-day and 7-day periods:

Per Cent Loss of Weight Based on 6-Day Periods		Per Cent Loss of Weight Based on 7-Day Periods	
At 6 days	3.25 to 3.75%	At 7 days	4.0 to 4.2%
At 12 days	6.7 to 7.5 %	At 14 days	8.0 to 8.5%
At 18 days	10.0 to 10.5 %	At 21 days	12.0 to 12.5%
At 24 days	13.5 to 14.5 %		

As a basis for figuring correct evaporation, the operator should attempt to secure an average of about 3½ per cent loss for each 6-day period. A variation of a fraction of a per cent either way may be tolerated providing some compensation during the remainder of the 24-day period is made. A loss of approximately six-tenths of 1 per cent each day is another basis that may be used. If, during the process of weighing, the operator is able to check the actual condition of humidity with a wet bulb thermometer, he will soon find out what condition of humidity in actual wet bulb reading gives him the correct evaporation in his particular machine and under his particular condition.

It is not possible to make any specific recommendation in actual wet bulb reading due to the extreme variation in different types of incubators. As a general basis, however, in cabinet type machines wet bulb reading should range somewhere between 78 and 82 degrees between hatches, and 90 to 92 degrees during the time the eggs are pipping and hatching.

The Size of Air Cell as a Guide to Correct Evaporation. A few experienced operators are able to judge the size of air cell very ac-

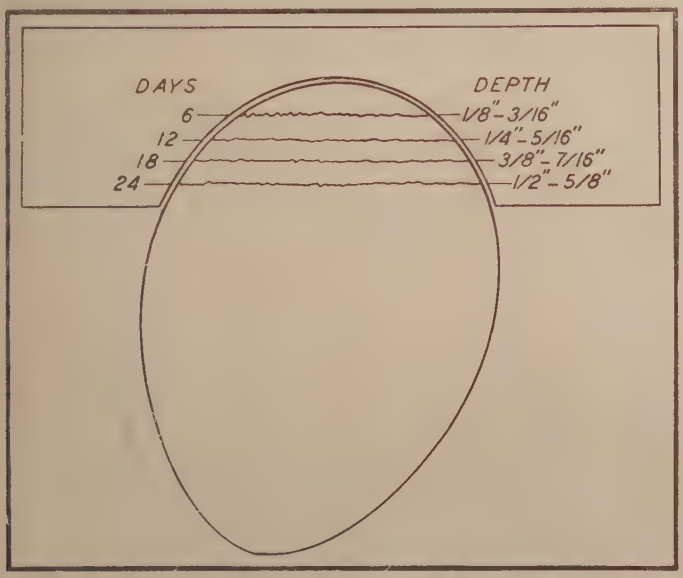


Fig. 1.—Showing how a graduated chart may be used for measuring the depth of air cell.

curately and learn to associate a given size of air cell with correct evaporation. For the inexperienced operator, and for those who have difficulty in judging accurately the size of air cell, the chart illustrated may prove helpful in checking on the actual size, and in eliminating to a large extent much of the guess work and inaccuracy. Individual eggs vary considerably and an average of several readings should be the basis of procedure.

High Humidity at Hatching. A condition of high humidity during the pipping and hatching period is essential; in fact, the humidity should be increased before any eggs are pipped. The humidity should be sufficiently high so that pipping may occur entirely around the egg without the membrane drying and sticking to the poult. As indicated above, this calls for a wet bulb reading of approximately 90 to 92 degrees in most cabinet type incubators. In sectional machines the moisture should be sufficient during this period to cause drops to collect on the inside of the glass in the door.

Results of Excessive Evaporation. Due to the lack of moisture during the first 24 days are: (1) excessively large air cell; (2) shell membranes dry and adhere to poults interfering with process of pipping; (3) pipping occurs low in shell; (4) small under-sized poults; and (5) large number of dead germs.

Results of Insufficient Evaporation. Due to excessive moisture during the first 24 days are: (1) small air cell; (2) excessive albuminous material collects in opening where egg is pipped and "glues" the poult fast; (3) thick rubbery shell membrane; (4) pipping occurs near large end; and (5) large flabby poults with puffy abdomen and poorly fluffed, due to excessive albuminous material. This condition is commonly referred to as "sticky" poults.

Ventilation. The problem of ventilation is associated with humidity. Excessive ventilation, due to a rapid exchange of the air, usually reduces the humidity, while inadequate ventilation usually raises the humidity and may result in insufficient evaporation. As a general rule the instructions of the manufacturer should be followed until the operator has found by experience what procedure to follow to obtain optimum conditions.

BROODING

Natural Brooding. Turkey mothers appear much more satisfactory than chicken hens. Turkey hens usually will take a brood even though they have been broody but a few days. Confine the mother to a coop and allow the poults to run out and in at will. A coop that affords some freedom of movement for the mother is best. A very serviceable plan is shown in Figure 9, page 36. Set the tight part of the coop quartering to the storm. Move the coop often to avoid contamination. Sage brush land is a good location for a brooder coop. If the broods are located in the field they should be on dry land. Poults should not be on land that is being irrigated or allowed to run in high grain. Space the coops far enough apart so that the brood cannot mix. Some turkey hens will steal all the poults that will stay with

them. Twenty poults are enough for one hen. The danger in too large broods is that they become crowded under the mother and some may become over-heated.

Just how long the hen is to be kept confined to the coop must be determined by the season and the weather. If weather conditions are favorable, she may be turned out a short time during the middle of each day when the poults are about a week old. After that, should the weather be quite favorable, she may be out most of each day. Keep the poults dry and warm or the loss will be heavy. It is never safe to turn hens loose with their brood until the poults are completely feathered. Drive the hen into her coop each night. If hens have been properly trained by driving in each night, there will be little trouble to get them into the coop at roosting time. Close the coop at night to prevent loss from predatory animals.

Equip each coop with a canvas with which to cover the open side during heavy rains or at night when the weather is cold or extremely damp. Work eyelets in the edges of the canvas, and drive a nail in the frame of the coop for each eyelet. Space the nails so that it will be necessary to stretch the canvas when it is being placed on the coop. Use the canvas covering only when necessary.

Artificial Brooding. Sanitation is very important to any system of turkey growing. Artificial brooding is fraught with hazard, therefore, any laxness in sanitation even though very slight is a bid for trouble. The condition of brooder yard is of more importance than is the size. Small yards may be better than large ones for the reason that there is less space to clean and the cleaning is more likely to be done. Soil becomes very dusty, and unless covered with sand, is very unsanitary. The poults breathe the dust, which in addition to the contamination and infection, produces discomfort, loss of appetite, sluggishness, and lack of thrift.

Satisfactory results may be obtained by covering the brooder yard with sand or gravel. Gravel beds are very suitable as brooding ground. Brooder yards should not be used oftener than every other year, except when covered with sand and the sand removed and replenished. It is much safer to move to a new plot of land each year, even when the best of sanitary measures have been practiced.

Wire yards are more sanitary and easier of operation than are sanded yards. Artificial brooding results are now being obtained that are sufficiently satisfactory to compare very favorably with the best results obtained when brooded by the natural method. Good results have been obtained only when the brooder house floor, feeding equipment and yards were in the best possible sanitary condition. Wire covered yards produce the very best in sanitation. Brooder yards or sun porches equipped with wire bottoms are shown in Figures 11 and 12, pages 38 and 42. Figure 11 is a colony house equipped with board floor and yard with wire bottom. Figure 12 is a large furnace-type brooder house with a concrete floor and the yard is equipped with wire bottom. This type of house is permanent and under such condition wire yards are the only safe sanitary provision. Straw should be used as litter. Dust, dirt or filth of any manner should be avoided

insofar as possible. The type of house referred to is suitable for any type of heating. It is cheap of construction, correct in principle, and economical of operation.

Shade should be provided so that the poults may be comfortable when in the yard. Equip the brooder yard with troughs for green feed and mash. The troughs should be just outside the yard all the way around the fence. If outside the yard they are easier filled and more sanitary. Visitors should not be permitted to go into the yard at all. Disease is often carried on shoes and by animals. It is not necessary for attendants to enter yards equipped as suggested, except for cleaning. The troughs are slatted on the side next to the brooder yard so that poults can reach through for green feed and mash. Plenty of feed troughs should be provided so that there will be ample feeding space. Cover the troughs to protect the feed from rain and sun. Artificial brooding under proper conditions may be more satisfactory.

Poults are more inclined to crowd than chicks when in brooders. They also are slower to learn to take to the brooders. Consequently, it is necessary to brood them in small units. One hundred fifty birds are as many as should be brooded in one unit. A smaller number is even safer. Heat and ventilation requirements for poults that are being artificially brooded are about the same as for chicks except that poults appear to require more heat for the first few days. When brooding with the furnace type it appears advisable to use some type of supplementary heat for the first few days.

FEEDING YOUNG TURKEYS

Milk First. While feed in some form and drink are necessary from the start, it is not safe to do much feeding of highly concentrated feed until the poults are from 65 to 75 hours old. The first feed should consist of sour skimmilk, green feed and chick-size oyster shell, beginning as early as possible after the poults are around 30 hours old. This practice may be continued until they are from 65 to 75 hours old when they may be given some concentrated feed.

Green Feed. Poults require much green feed. Young alfalfa is available and owing to its high feed value is probably the most practical green feed for turkeys. Young clover, lawn clippings and various types of garden green are also good. They should, however, be started on the type of green feed that will be continuously available.

The greens should be cut as fine as one-quarter inch lengths, and shorter would be better. Bright, well-cured, fine alfalfa hay that has been chopped into short lengths, soaked in cold water and permitted to drain is a splendid substitute for succulent greens. Begin feeding greens at the same time as the first milk is fed. They should have all the greens they will consume from then on and if so supplied there is small danger of over-feeding on concentrates; provided, however, that concentrates are not fed in great quantity until the poults are consuming green feeds freely. It is never safe to depend upon the poults to gather their own greens as they seldom consume enough in that way. The safer way is to gather and chop the greens for them. Every turkey farm of any consequence should be equipped with a hay cut-

ter with a sufficient capacity for cutting the necessary greens and sufficient power to operate it satisfactorily.

Cod Liver Oil. Cod liver oil as a source of vitamin D is a liberal insurance against leg weakness (rickets), bone deformities and many other ailments common to turkeys as a result of under-nourishment when poults. Mix one quart to each 100 pounds of feed during the first few weeks of age. Mix thoroughly so that the cod liver oil will be evenly distributed. A ten-day supply during hot weather is as much as should be mixed at one time. One teaspoonful of cod liver oil to three pounds of feed is a suitable proportion for small amounts. In addition to the vitamin D requirement, cod liver oil, if of proper quality, may supplement vitamin A which in many instances is insufficient in the ration fed.

Direct Sunshine Necessary. The ultra-violet rays of direct sunshine are as beneficial as feed to growing poults. These rays promote proper bone development, aid in the prevention of rickets and stimulate growth. Sunlight passing through window glass does not have this anti-rachitic effect. Operate window openings so that the direct sunlight will be admitted to the maximum extent that weather conditions will permit and encourage the poults to run out of doors at an early age. Feeding out of doors naturally encourages the poults to go out in the sunlight more than if fed in the house. For that reason drink founts, feed troughs and hoppers should be moved to the yard as early as conditions will permit.

Concentrates. The feeding requirements of turkeys, either young or old, are not essentially different from those for chickens except that turkeys require more bulk in the form of finely cut green feed. If the practice of feeding green feeds as stated is adopted, mash may be fed from the start and the scratch mixture added when desired and the poults permitted to eat at will. The principal advantages of the mash system of feeding are convenience, labor saving, ease of sanitary control, reduction of the danger of over-feeding, and insurance of a complete ration.

Fresh Feed. Turkeys of any age should be required to clean up each feeding before more is given. Accumulations of fine feed in the bottom of the trough lessen the appetite and as a result reduce the feed consumption. The better practice, therefore, is to feed frequently and in the amount that the birds will consume in a reasonable time and which will insure complete consumption of all the feed including the finer portions.

Do Not Feed Wet Feeds. It is never a safe practice to give wet and sloppy feeds. Hard boiled eggs, ground and mixed with bread crumbs or stale bread soaked in milk or similar moist or wet feed are likely to cause digestive disorders. Dry feeds with sour skimmilk as a drink are much better for poults and are much safer as a feeding practice.

Feed Formulas. The following mash mixtures are suggested for young turkeys. They may be used as listed or as a guide by which to utilize the feeds of a particular locality. More complete informa-

tion on feed formulas for all poultry is contained in Idaho Extension Circular No. 44, *Poultry Rations and How to Mix Them.*

When liquid milk is fed, better growth is obtained by giving milk as the sole drink for the first week or ten days, after which time the milk is supplemented with water.

Suggested Mashes for Young Turkeys

No. 7

	100 lb. Basis	1 Ton Basis
Bran	16	320
Ground oats	15	300
Ground yellow corn	30	600
Ground wheat	25	500
Alfalfa leaves	5	100
Oyster shell	4	80
Bone meal	3	60
Salt	1	20
Cod liver oil, qts.	1	20
Per cent protein		11.7

Starting mash with liquid skimmilk as a drink.

No. 8 (Modified)

	100 lb. Basis	1 Ton Basis
Bran	16	320
Ground oats	10	200
Ground yellow corn	35	700
Ground wheat	10	200
Meat scrap	3	60
Fish meal	3	60
Powdered milk	10	200
Alfalfa leaves	5	100
Oyster shell	4	80
Bone meal	2	40
Salt	1	20
Cod liver oil, qts.	1	20
Per cent protein		15.6

Starting mash when no liquid milk is available.

No. 11

	100 lb. Basis	1 Ton Basis
Bran	29	580
Ground oats	15	300
Ground barley	10	200
Ground yellow corn	15	300
Meat scrap	7	140
Fish meal	5	100
Powdered milk	5	100
Alfalfa leaves	5	100
Oyster shell	5	100
Bone meal	2	40
Salt	1	20
Charcoal	1	20
Per cent protein		18.5

Starting mash without liquid skimmilk as a drink.

No. 12

Turkey Range Mash

	100 lb. Basis	1 Ton Basis
Bran	30	600
Ground oats	17	340
Ground barley	18	360
Ground yellow corn	17	340
Meat scrap	3	60
Fish meal	3	60
Powdered milk	2	40
Oyster shell	5	100
Bone meal	3	60
Salt	1	20
Charcoal	1	20
Per cent protein		15.6

If the turkeys have a considerable quantity of skimmilk, the powdered milk may be eliminated.

When poults are from four to six weeks of age, formulas containing powdered milk may be modified by reducing the amount of powdered milk to one-half the amount specified.

At 10 weeks of age the powdered milk may be eliminated entirely and the amount of meat scrap and fish meal maintained at five pounds of each to each 100 pounds of mash. Some milk in the ration is a benefit in that it will insure better development.

A scratch mixture should be fed in addition to the mash, after poults are from ten days to two weeks old. Feed the scratch as well

as the mash, in troughs and hoppers. For sanitary reasons the scratch should not be fed on the ground or in the litter. (This statement applies to turkeys of any age).

Feed formulas may be varied to some extent to suit local conditions. Corn, however, is necessary to obtain the best results, and it should be the yellow variety. If sour milk is fed through the growing period, better developed turkeys will result. In many sections of Idaho corn is not always available at reasonable prices. Under such conditions it may be necessary to feed small grains such as barley, oats, and wheat. If milk is available, the small grains may be fed with good results. Some of the best turkeys grown in Idaho are fed on milk and barley. Milk should be available any place in Idaho where turkeys are grown. If barley is the feed used for the turkeys, crack it for the poults and steam roll it for the older ones. Turkeys which have had plenty of sour milk and greed feed, some yellow corn, cod liver oil, bone meal and oyster shell in combination with the common grains throughout the growing period, will show satisfactory development and finish and the percentage of deformities, such as crooked breast bone, will be small.

RANGE MANAGEMENT

Get Poults on Range. When the poults are fully feathered and the weather becomes settled, they must be moved to the range. The range should be dry. Shelter may be necessary for several weeks because of sudden storms. The shelter should be handy so that the turkeys can be gotten under shelter quickly on the approach of sudden storms.

Shade on Range. Some type of shade should be provided to protect the turkeys from the discomfort of the sun. The shade must be ample so as to make crowding unnecessary. Burlap on frames that are 10 to 12 feet above the ground affords satisfactory shade. Low shades are never satisfactory as they become too warm.

Feed on Range. Feed growing turkeys some grain each day while they are on range. Grasshoppers are good turkey feed but are not sufficient. Some grain is necessary to sweeten the crop and the digestive tract. Feeding the grain evenings will encourage the turkeys to assemble for the night. If there are plenty of grasshoppers, crickets and other bugs and insects, mash feeding on the range may be unnecessary. Many poor market turkeys are the result of starvation while on the range. Prime turkeys bring the most money. Feed is required to produce them. The good turkey grower is a good feeder.

Provide Drink. Growing turkeys must not suffer on account of thirst. Thirst retards growth. If ranging on the desert, provide troughs and place them conveniently for the turkeys. Move the troughs as often as necessary to accommodate the turkeys. Water is sufficient unless the desert is destitute of insect life, when some sour milk would help. In the absence of both milk and insect life, feed the developing mash in place of grain. Whether the drink be either milk or water, be sure that the supply is adequate, fresh and clean.

Keep the drink troughs clean. Turkeys should not be permitted to drink stagnant water. If irrigation ditches are the source of drink, keep the water moving. Stagnant pools about the barnyard and other places on the farm are the sources of many disorders and diseases of turkeys.

Green Feed. Green feed should be taken to the range. The natural supply there may be quite inadequate. Chopped green alfalfa is good. It is never safe to depend on turkeys to gather their own greens, even though the supply on the range may be adequate. The better practice is to supply finely chopped greens in troughs in the amount the birds will consume. Finely chopped, bright alfalfa hay soaked in cold water is a splendid substitute when green feed is not available.

Start Finish Early. Many turkeys are grown for the Thanksgiving and Christmas trade. In order that they may be ready for the Thanksgiving market, they must be hatched early, kept growing and the finish or fattening must be started early. Begin to bring them in off the range about October first or soon after harvest. Do not force them in. Gradually increase the feed each day and feed toward the stubble fields. Do not take the turkeys abruptly from the range to stubble fields where there is any great amount of shattered grain. The abrupt change from old grain to new may cause diarrhea and other fall disorders. An ample supply of old grain should be carried over each year to get the turkeys well started on the finishing feeds so that the change from old grain to new may be made gradually. When turkeys are going onto the stubble fields, feed liberally in the morning near the roosting ground and the change will be more gradual and much safer.

Feed While on Stubble. A very large flock of turkeys will glean a stubble field much quicker than is ordinarily anticipated. It is a good plan to supplement the stubble field with threshed or shelled grain. Encourage the turkeys to range by feeding far out on the field. Continue to increase the ration until they are on full feed at least one month before the market period. The market periods in Idaho are two to three weeks before the holidays—Thansksgiving and Christmas. There is also a large demand for prime turkeys at later dates, even into midsummer.

Yellow corn is the best feed. However, very fine turkey finish has been secured by feeding barley and sour skimmilk. The barley is steam rolled and fed in troughs. The plan for a good feed trough is illustrated in Figure 6, page 33. The skimmilk is fed in troughs of the same type as those used for feeding barley. Sour skimmilk is beneficial in any combination of grain rations. A location out on the field, away from the farm buildings is best for a feeding ground. Do not feed continuously on the same spot. Shift frequently to avoid filth and contamination. Turkeys do not feed well when on muddy ground or when feed troughs become filthy. The danger from disease also is great. Frequent feeding is much better than one feed for the day. Hopper feeding may be practiced satisfactorily but

frequent feeding is safer and will produce a more rapid and better finish.

Very often turkeys do not feed well during early fall. The finish, therefore, is slow. Sameness of feed or limited ration is usually the cause.

Ground grains containing 5 per cent bone meal and 5 per cent tankage or meat or fish meal, will improve the appetite and hasten finish. Feed cod liver oil also; the formula being the same as for breeding stock. Cod liver oil may be necessary if the ration is lacking in alfalfa, yellow corn, and other natural vitamin A supplements. (See page 17 regarding the use of cod liver oil).

KILLING AND DRESSING

Kill Finished Stock. Select carefully and kill only finished stock for each market period. Do not guess, but examine each bird. Birds that are not finished should be fed for the next pool or market date. Poor finish causes injury in two ways: (1) The value of the stock is less; (2) The reputation of the community is injured. A longer feeding period will increase the value of the stock much more than the cost and in addition will improve the reputation of the community.

The finish may be determined by the plumage, color of skin and plumpness of body. Any turkey that has any amount of pin feathers is not fat, is difficult to dress and may be graded down. When the wings become quite yellow on the under side and the birds show liberal yellow on the back, they are ready to kill, provided they are in full feather. Examine the breasts and thighs. If they are well covered with firm flesh, the birds are ready for market.

Starve Before Killing. The crop, gizzard and intestines must be completely empty before killing. The quality and flavor of the carcass

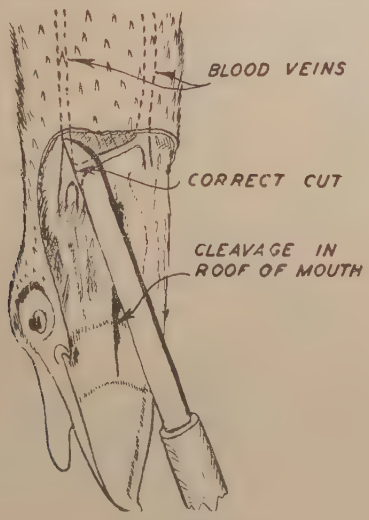


Fig. 2.—Sticking.

are impaired if there is any feed in the bird when killed. Fast the birds for 36 hours before killing. A full drink of water in the morning may cause the feathers to loosen and will flush the intestinal tract.

Catching. Confine the stock to a small corral or enclosure. A large shed is ideal. Many bruises are made on carcasses when catching to kill. Catch the birds firmly by both legs. Drag the legs from under them, allowing the birds to fall gently on their breasts. A hook is necessary when catching in a large space. The plan for a home made hook is shown in Figure 10, page 37. Get the hook over both legs, when possible, before attempting to down the birds.

Hanging. Fasten a strong cord or small rope to a rafter or some strong support. Tie a wooden lug to the end of the cord or small rope as shown in Figure 13, page 43. The turkey is suspended by throwing the cord or rope around the legs, just above the feet. The lug binds between the legs and rope. This plan is rapid and secure. Wire-hooks also are used. The wire is bent to provide a hook for each leg. The hook is supported and suspended in the same manner as the lug. Use number 4 wire.

Sticking. Take the head of the bird in one hand; with a sharp, long and thin but strong-bladed knife, cut the arteries in the throat as shown in Figure 2. After the veins are cut, pause for about 15 seconds and then thrust the blade into the brain. Figure 3.

Fig. 3.—Piercing the brain.

This is done through the cleavage in the roof of the mouth or through the eye. The bleeding must be thorough. If not, the blood will clot in the neck. Red spots on the body are the result of poor bleeding. The puncture of the brain is for the paralytic effect, which causes the feathers to loosen. The sticking must be thorough. Thrust the blade to the back recess of the brain. When the sticking is thorough the bird will indicate it by a quiver of the body.

Weighting Beak. A dry cell frequently is used to weight the beak. Equip the weight with a hook to insert into the beak as shown in Figure 14, page 43. The weight should be left in position until the bird is thoroughly bled.

Dressing. As soon as the bird is stuck and the weight is hung, start picking. Pluck the stiff tail feathers first and the flight feathers from the wings next. Immediately start plucking the feathers from the back and continue picking down toward the head of the carcass. The feathers should not be immediately plucked from the thighs.

Pluck the feathers upward. Do not jerk down except on the back where downward plucking may be done with safety. Pluck rapidly, removing small bits of the plumage with each movement. The temptation to speed by removing large quantities of feathers at each movement must be overcome. The danger in speed is torn places in the skin. A good practice is for one picker to rough and others to finish. Roughing is plucking the coarse feathers. Finishing is the plucking of the down and any pin feathers which may be on the carcass. Leave no feathers on the legs, neck or wings. Feathers must be removed from the head. If there are any rents in the skin, squeeze together and sew with clean, white thread while the carcass is yet warm.

Good Dressing Pays. Remove all feathers from the legs, head and wings. Pin very thoroughly. A very few pin feathers on the breast or thighs may cause a bird that would otherwise have gone as a prime, to be placed down one to two grades. Wash the feet. Remove all blood from the head and wipe the beak with a damp cloth. Any blood or soil spots on the carcass should be removed. Blood that has become dry may be removed by brushing a few times with a dry sponge. A little effort in pinning and cleaning the birds may mean from two to eight cents a pound difference in market value.

Conveniences. Rapidity in each operation in killing and dressing is essential to insure a clean and satisfactory job. Provide each rougher with a table, or bench upon which to lay his knife and weights. Locate the catching crate as near the pickers as possible. Remove the birds to other hooks or hanging supports to pin and finish. Hanging is safest to prevent bruising the carcass when finishing. Never lay birds on a table to pin. Always hang them.

Cooling. Prepare racks upon which to hang the dressed carcasses to cool. Make the racks substantial. Place the racks under cover, properly enclosed so that the carcasses will not be damaged by weather or animals. Plenty of opening for air movement should be provided so that the cooling will be thorough. Hang the birds by the legs. Hang them so that they will not touch the wall, posts or each other.

The cooling must be thorough, yet there must be no freezing. Wrap the head before loading. If the heads are wrapped there is less likelihood of blood stains on the carcasses when they are being hauled to market. The carcasses must be thoroughly cooled before boxing. Graders test all doubtful carcasses with a thermometer for temperature. Thirty-six degrees Fahrenheit, internal temperature is the danger line. No birds that are warmer should be packed, and 34 degrees is much safer.

Hauling to Market. Line the conveyance with clean material to prevent soiling and bruising of carcasses. Pile the load tightly to prevent jostling. Cover the load with clean canvas.

TURKEY DISEASES AND SANITATION

Turkey diseases in general are not well understood by the turkey producer. In many instances outbreaks of diseases are attributed to some fault of management when in reality tuberculosis or blackhead is the cause of the mortality.

The greater number of turkey diseases are caused by infectious organisms which, of course, cannot develop spontaneously. In other words, these disease producing organisms must in some way be introduced into the turkey flock in order that the birds may become infected. Turkey diseases in general are the same as those affecting chickens. Turkeys, however, seem to be more susceptible to many of these diseases than are chickens. Most of the more common diseases of turkeys, such as tuberculosis, blackhead, and intestinal parasites, may be prevented.

How Turkey Diseases Are Introduced

The beginner in turkey production may experience very satisfactory success providing he does not attempt to grow turkeys with chickens. This is due to the fact that he is usually starting where turkeys have not previously been raised and, therefore, where the buildings and grounds have not become seeded with the organisms responsible for turkey diseases.

Mature Turkeys Carry Infections. One common method of disease introduction is through the purchase of mature or semi-mature breeding stock. This is understandable when we realize that practically all mature turkeys harbor some form of parasite or infectious disease. Mature birds should not be purchased except from flocks known to be free from diseases and preferably from a flock in the immediate neighborhood.

The most satisfactory method of obtaining breeding stock is through the purchase of hatching eggs or day-old poults. One can be assured that these eggs or poults will not harbor the disease infections that so many times are found in mature birds.

Chickens Carry Turkey Diseases. The outstanding cause of disease introduction on diversified farms is through contact with chickens on the same farm. Turkeys are highly susceptible to some chicken diseases, especially blackhead. The production of turkeys in contact

with chickens on the same farm practically always results in heavy mortality in the turkeys and consequently, in financial loss.

Other Methods of Introduction. Other factors which may serve as the means of introducing infectious diseases into the turkey flock are the use of returnable shipping crates, contact with neighboring poultrymen or visitors, the use of second hand equipment, and the introduction of disease organisms on grain bags or feed material. These sources of introduction can be guarded against and prevented. The necessity for guarding against the introduction of these diseases is of primary importance. One should couple this program with one of sanitation to prevent the spread and propagation of turkey diseases if they are by chance introduced in spite of the precautions taken.

Quarantine and Disposal of Diseased Birds. Young poults should be grown out of contact with chickens or poultry droppings. All birds that show evidence of disease conditions should be isolated. All badly diseased birds should be killed and autopsied in order to detect disease conditions. Birds that are killed or that die should be burned.

Early Brooding Diseases

Diseases of young turkeys during early brooding are very similar to those affecting young chickens. Pneumonia caused by chilling or overheating is quite common. The eating of litter causes impactions with fine chaff or other foreign material and may be the cause of heavy mortality if the birds are placed in the brooder before they are ready to be fed. As is suggested in the management phase of this bulletin, turkeys should be given a drink, oyster shell, and green feed immediately after they are placed in the brooder. The availability of nutritious material will prevent the young poults from eating litter. Rickets occasionally occur in early-hatched, but more often in late-hatched poults. The prevention of this condition is discussed under "Feeding the Poults."

Pullorum Disease

Pullorum disease, commonly known as bacillary white diarrhea, occasionally is responsible for losses in young turkeys. Judging from the increasing frequency that this disease is diagnosed at this Station, it is becoming more prevalent in Idaho. Pullorum disease should be suspected and specimens sent to the laboratory for diagnosis if an excessive mortality occurs during the first two weeks in poults that are strong and that have not been chilled or overheated. This disease spreads in the incubator, especially where chicken eggs also are being hatched.

Prevention and Treatment. The only method of prevention is to buy poults from a source known to be free from pullorum disease and from hatcherymen using a separate machine for hatching turkey eggs. There is no satisfactory treatment for this disease. Antiseptics in the drinking water are useless. An increased amount of milk in the diet serves as a laxative and may be of slight benefit. Good nursing and cleanliness in the brooding practice are recommended.

Blackhead or Enterohepatitis

This is the most serious disease affecting turkeys since it is so common and severe. In the past when blackhead gained a foothold in the turkey producing areas, turkey production gradually ceased. Recently, however, many new facts concerning this disease have been brought to light and it is now possible to combat it provided we are willing to take advantage of this new knowledge.

Blackhead more often attacks turkeys before they are three months of age, but it may affect birds of any age. The organism responsible for this disease is a single-celled animal organism similar to the one responsible for coccidiosis. The infection is spread through water and feed contaminated with the droppings from turkeys or poultry.

Blackhead in Chickens. Chickens are susceptible to blackhead and in recent years this disease has been found to produce considerable mortality in young chicks. Mature chickens are seldom seriously affected, although they are usually constantly infected and, consequently, capable of transmitting the disease to turkeys. It is practically impossible to grow turkeys satisfactorily where they are in contact with chickens.

The Cecal Worm and Blackhead. The small cecal worm found in the ceca or blind gut of both chickens and turkeys, plays an important role in the transmission of blackhead. It is definitely known that this parasite is directly linked up with the production of blackhead in turkeys, and without this parasite it is practically impossible for this disease to live over in the soil from year to year. It has been proved that the blackhead organism alone will not live outside the body of the bird for more than one day. Young poults that become infected may, however, transmit the disease directly to other poults through the feed and water contaminated with their fresh droppings.

It is known that blackhead can be carried over on land that has been used as chicken or turkey range year after year. It has been found that the cecal worm eggs is the source of this infection. The feeding of cecal worm eggs to young turkeys regularly produced symptoms and lesions of blackhead; therefore, a program that will prevent the development of cecal worms in turkeys will also prevent them from developing blackhead. This disease is most often found when the poults are allowed access to old runs; when they run in the barnyard or are in contact with chickens; when they are confined to a small area that becomes dirty; when the range is wet; and when the housing and feeding equipment become dirty. Desert-reared birds seldom suffer from blackhead or coccidiosis. By following the suggestions outlined under management and brooding of young turkeys in this bulletin, much of the danger of an outbreak of this disease will be removed.

Symptoms and Lesions. Turkeys infected with blackhead become weak and droopy, their wings are dropped, their appetite is poor, and they usually lag behind the remainder of the flock. In the latter stages of the disease they develop a profuse yellowish diarrhea. It is difficult, if not impossible, to say definitely that a bird has blackhead by observing the symptoms. In general these are not so very different

from those seen in coccidiosis. It is necessary to autopsy one or more of the affected birds in order to definitely diagnose the disease. Two important lesions should be looked for in the abdominal cavity of poults in diagnosing blackhead. First, the ceca, or blind guts are usually affected, and they show a necrotic, cheesy material that is more or less closely adherent to the mucous lining. This cecal plug is often present in coccidiosis; however, in the case of coccidiosis, the plug is not adhered to the mucous membrane. Second, the liver will usually be affected also, showing irregular patches of variable size with a necrotic sunken center bordered by a greenish-yellow area. This liver lesion is typical of blackhead only, and is a definite means of identifying the disease.

Treatment. No method of treatment or prevention involving the use of drugs has proved of benefit. The only means of combating this disease is through sanitary measures. These measures must be obtained to prevent the young turkeys from coming in contact with the droppings of mature turkeys or chickens either of which may harbor the cecal worm eggs and blackhead infection. Turkeys that once develop blackhead should be isolated in a clean house or moved to a clean dry range. Desert range is ideal for this purpose. The entire group of poults from which affected birds are taken should receive the milk treatment.

Milk Treatment.. The poults should be treated for 4 to 7 days with a milk flush. A satisfactory way to supply the milk is to add powdered milk to the regular mash mixture until the milk content is 25 per cent of the total mixture. No scratch feed should be allowed during this period. An abundance of water should be available at all times. Liquid skimmilk or buttermilk can be used for the flush if a sufficient amount is available so that milk is the only drink throughout the entire treatment period. They should then be placed on clean range and every precaution possible taken to prevent the spread of the disease in the flock. It should be remembered that blackhead is the most serious disease confronting turkey growers and that it must be kept in control if turkey production is to be profitable.

Coccidiosis

When coccidiosis occurs in young poults it usually appears before they are placed on the open range. It is caused by a single-cell animal organism, microscopic in size, that multiplies very rapidly once it gains entrance into the alimentary tract of young turkeys. The source of contamination is largely through the droppings. It develops in turkeys in exactly the same manner as it does in chickens.

When turkeys become affected with coccidiosis they become droopy, the wings are dropped, and they have a tendency to huddle under the brooder stove or near the hen to gain additional heat. In acute outbreaks of this disease the droppings may contain considerable blood due to the activity of the organisms in the mucous membrane of the digestive tract.

If a bird suffering from coccidiosis is autopsied, the ceca or blind intestines will usually be found to be the seat of the trouble. These

blind guts may contain clotted blood or a semi-solid cheesy material. In the latter stages of the disease this material develops into a plug which can be removed as one piece. Occasionally the duodenal form of coccidiosis is present in turkeys. This shows up as a thickening of the small intestines just posterior to the gizzard.

Coccidiosis May Be Confused With Blackhead. This condition of the ceca or blind guts may be confused with a similar condition that develops in blackhead. In coccidiosis the cheesy plug is usually not directly attached to the mucous membrane, whereas, in blackhead this cheesy material is closely adherent to the lining of the intestine. In blackhead one will more often also find lesions in the liver, which is not the case in coccidiosis. The only sure way of diagnosing coccidiosis is by an examination of the intestinal material with a microscope. Turkeys may die within 24 hours after showing initial symptoms. They may recover completely if the infestation was not heavy or develop as runts if the affection was severe.

If the disease breaks out after the birds are on the range they should be confined to a house which, preferably, has a wire yard or place the birds on a dry desert range. The house should be cleaned at daily or two-day intervals to prevent the young poults from reinfesting themselves through picking up the droppings. Use of the milk flush as outlined under blackhead is satisfactory for the treatment of coccidiosis.

Roup

Roup in turkeys most often develops in late-hatched, poorly-developed poults; in those that are allowed to range with chickens; and in those fed a ration deficient in vitamin A. It is one of the most common disease of turkeys.

Nutritional Roup. A deficiency of vitamin A in the ration is responsible for the majority of the cases of roup in turkeys in this state. The lesions associated with this so-called nutritional roup are a swelling of the face in front of the eye, watery eyes, and pustules in the mouth and esophagus. If the affected bird is autopsied the kidneys will show an accumulation of white chrystaline urates in the tubules. Figure 4 shows these nodules in the esophagus and crop.

Vitamin A is found in cod liver oil, yellow corn, and green feed. An abundance of green feed such as fresh alfalfa cut in short lengths, will prevent the development of nutritional roup.

Infectious Roup. Infectious and contagious forms of roup may develop independently of nutritional roup but usually follow it where the mucous membranes are already irritated. This form of roup is accompanied by a distinct odor and the cheesy material in the eyes and sinuses in front of the eyes is yellow in color. In uncomplicated nutritional roup there is no odor and the cheesy material is white.

Treatment and Prevention of Roup. When roup is detected in turkeys it is usually evidence that the management is at fault. If the directions outlined in the management phases of this bulletin are followed, roup will rarely develop. Nutritional roup is best prevented by feeding an abundance of fresh green feed, and infectious roup, by

Fig. 4.—Lesions of esophagus and crop showing pustules associated with, and typical of nutritional roup in turkeys. (1) upper esophagus; (2) crop; (3) lower esophagus.

following sanitary practices in the rearing program. The two most important points in this sanitary program are to keep the turkeys entirely separate from chickens and to range them on clean, dry ground.

When roup is found to be present in the flock, prompt measures must be made to eradicate it at once. The affected birds must be removed to an isolated pen; the entire flock should have an increase in the supply of green feed, or a supply of cod liver oil to assure an abundance of vitamin A. If possible a good antiseptic, such as one of the chlorine antiseptics or potassium permanganate, should be added to the drinking water to prevent the disease from spreading to clean birds, if it is the infectious form. The swelling in front of the eyes should be drained in the affected birds, either by squeezing it through the nasal passage or by cutting an eliptical piece out over the swelling. A 15 per cent solution of argyrol should be introduced into the eye and nasal passage, daily, with a medicine dropper. Well developed birds under good management respond rapidly to treatment. Birds affected with internal or external parasites, those grown in the

barn yard with chickens, and those on old damp ranges seldom recover.

Tuberculosis

Tuberculosis of turkeys is not as general as tuberculosis of chickens. It is, however, prevalent in turkeys where the disease is present in chickens on the same farm. The presence of tuberculosis in turkeys can be detected by autopsy of an affected bird, in which instance yellowish firm nodules are usually found in the liver or spleen and along the intestinal tract. These nodules are differentiated from the lesions of blackhead by the fact that they are circumscribed and are usually raised above the level of the liver tissue.

The only method of controlling this disease is through the elimination of the affected birds and the growing of young stock out of contact with any infected birds and on land that is clean. By this method a clean flock can be reared the first season.

Round Worms

Round worms of turkeys are similar to those of chickens, two forms being most prevalent. The large round worm of the small intestine is commonly found where turkeys are grown in contact with chickens or on the same piece of land year after year. The small cecal worm found in the blind intestine is the most common worm of turkeys and is the one associated with the blackhead organism.

These worms are carried over from year to year in infected stock and in the soil where droppings have accumulated in the form of embryonated or infectious eggs. These eggs are very resistant to changes of climatic conditions and to practically all disinfectants. It has been found, however, that a solution of pure iodine in water is very toxic to the eggs and worms. The use of this type of material, found on the market as iodine suspensoid, is the only satisfactory means of killing these eggs as they occur in the houses and equipment used in brooding poults.

By following the brooding and sanitary methods already suggested additional assurance of freedom from intestinal parasites may be obtained. The large round worms may be eliminated from the intestinal tract of turkeys by the use of nicotine sulphate which should be given in capsules to each individual bird. Nicotine sulphate capsules may be obtained from your local veterinarian or druggist. Two mature chicken-size capsules are required for a mature turkey. Iodine in the form of iodine vermicide that is introduced into the gizzard by means of a catheter or tube and bulb syringe supplied with the medicine, is very satisfactory in removing both round and tape worms. This treatment is highly recommended where the birds are in poor condition due to the fact that it does not irritate the digestive tract or weaken the birds.

Tape Worms

Tape worms of turkeys, like round worms, are prevalent where turkeys are grown in contact with chickens or where they are forced to use the same range year after year. The same preventive measures should be taken as for round worms. In addition special precautions

should be followed to prevent flies from traveling from older turkeys or chickens to young poults. These flies as well as beetles and garden slugs may be carriers since they are intermediate hosts of such worms.

The only certain means of determining whether turkeys have round or tape worms is by autopsying an affected bird. This is done by slitting the intestine from end to end while in a shallow pan of water and noting the presence or absence of worms in the intestinal tube. Tape worms may be removed from the intestinal tract of turkeys by the use of Kamala, the dose being two grams for mature turkeys, one and one-half grams for young hens and toms, and one gram for birds weighing from 8 to 12 pounds. Smaller birds, and those in an unthrifty condition, should not be treated without special directions. Kamala tablets or capsules in one gram doses may be obtained from your local veterinarian or druggist. Birds suffering from both round and tape worms may receive double treatment if they are in good flesh. Iodine as recommended for round worms is very satisfactory for the removal of tape worms, also.

Other disease conditions of turkeys such as fowl pox, cholera, and typhoid, and such parasites as lice and mites, are not materially different than these same conditions in chickens. Information concerning these disease conditions as well as more specific information on sanitary methods in rearing, are given in Idaho Extension Circular No. 45, *Prevention and Control of Poultry Diseases,* and Idaho Experiment Station Bulletin No. 168, *The Control of Fowl Pox in Poultry.*

CONSTRUCTION OF EQUIPMENT

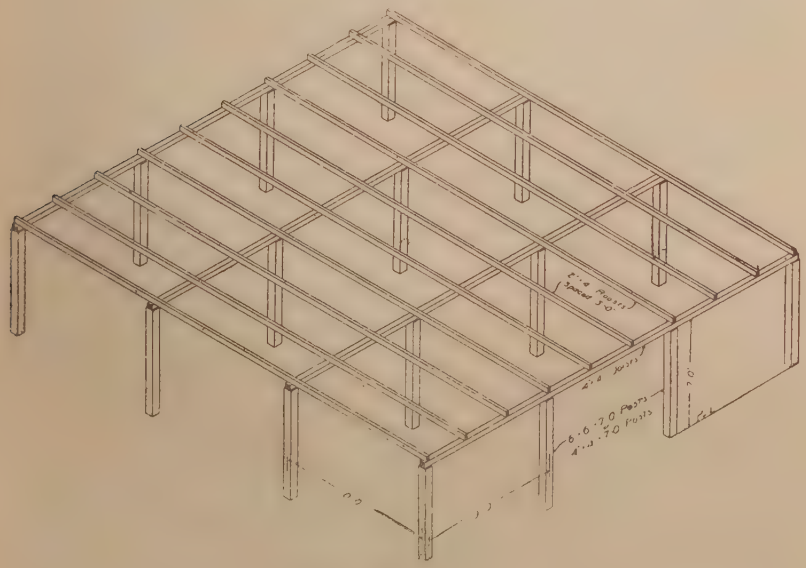


Fig. 5.—Turkey roost.

Outdoor Perches

Figure 5 shows the outdoor perches for turkeys. If these roosts are to remain permanently in one place the 6x6 posts should be 9 feet long and set 2 feet in the ground; otherwise, the posts may be set on the surface of the ground and must then be braced each way with diagonal strips of 1x4. The posts are set 10 feet apart one way and 9 feet apart the other way. They should either be set so that the tops will line up or else they should be sawed off evenly in order that the perches may all be level. 4x4 joists are laid across the tops of the posts the short way. 2x4 roosts are then set across the joists in the opposite direction at 3 feet intervals. The roosts shown will accommodate 200 turkeys and will require the following materials.

MATERIAL AS BOUGHT			MATERIAL AS USED		
No. of Pieces	Length	Size of Stock	No. of Pieces	Length	Use made of piece
8	18′	6x6	16	9′	Upright posts
	(16 posts are set in the ground)				
8	14′	6x6	16	7′	Upright posts
	(16 posts are not set in the ground)				
6	18′	4x4	12	9′	Joists
30	10′	2x4	30	10′	Roosts

SUMMARY

No. of Pieces	Length	Size of Stock	Material	Board Feet
8	18′	6x6	No. 1 common fir	432
or 8	14′	6x6	No. 1 common fir	336
6	18′	4x4	No. 1 common fir	144
30	10′	2x4	No. 1 common fir	200
			Total if posts are set in ground, bd. ft.	776
			Total, if posts are not set in ground, bd. ft.	680

8 lbs. 16d nails.

Feeding Trough

A satisfactory feeding trough is shown in Figure 6. This trough requires for its construction 16 ft. of 1x6; 19 ft. of 1x10; and 5 ft. of 1x3 clear grained lumber. The 1x3 cleats are nailed on the ends of the trough above the top of the trough sides for the purpose of holding the trough cover at various heights required during the growth of the birds. During early feeding the trough may rest directly on the ground. As the height of the birds increases, however, the trough should be raised to a convenient height by placing short blocks under both ends.

Setting Pens

Figures 7 and 8 show the construction of the pens for the turkey hen when setting. The pens are made in two rows, each pen 3 feet wide and 8 feet long. The number of sections may be increased to suit requirements. To construct the pens, begin by nailing a 1x12 board along the bottom of the 2x4 uprights, 4 feet long, in each

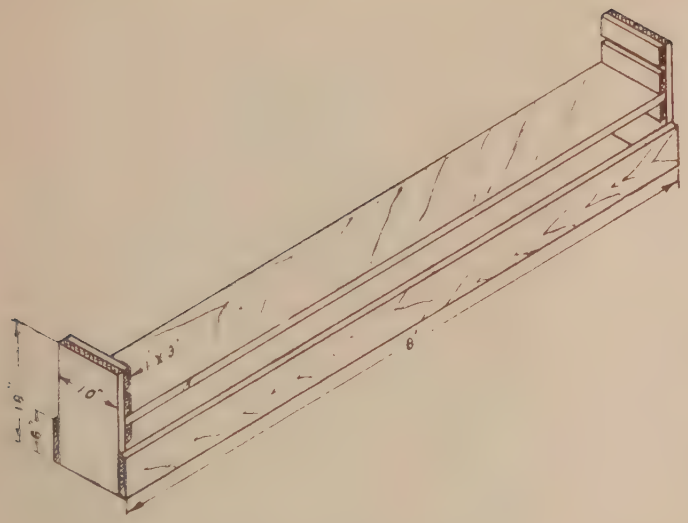


Fig. 6.—Feeding trough.

corner of each pen. On the interior partitions and on the sides of the pens another 1x12 is fastened solidly to the 2x4s. At the end of each pen a 1x12, 3 feet long, is hinged to the bottom board in such a manner that it may be opened out when the turkey hens are put into or removed from the pen. From the upper edge of the two 1x12s, which will be 2 feet above the surface of the ground, the partitions and outside walls are built up with 4 strips of 1x4 spaced 2 inches apart, making the total height 4 feet.

A space 2 feet wide over the outer ends of the pens is roofed over solidly with 1-inch lumber. The remaining space on the top of the pens is covered by 6x6 feet frames made up of 1x4 material covered with the inch mesh poultry netting. A small hole for the nest is scooped in the ground at the end of each pen under the solid portion of the roof. The section of pens shown in the figures will accommodate 16 turkey hens and will require the following materials:

MATERIAL AS BOUGHT			MATERIAL AS USED		
No. of Pieces	Length	Size of Stock	No. of Pieces	Length	Use made of piece
9	16′	2x4	34	4′	Uprights
30	16′	1x12	26	16′	Sides and roof
			8	8′	Sides and roof
4	12′	1x12	16	3′	Doors
52	16′	1x4	44	16′	Partitions
			8	8′	Sides and ends
			32	2′	Corner braces
24	12′	1x4	32	3′	Inside partition
			32	6′	Screen frames

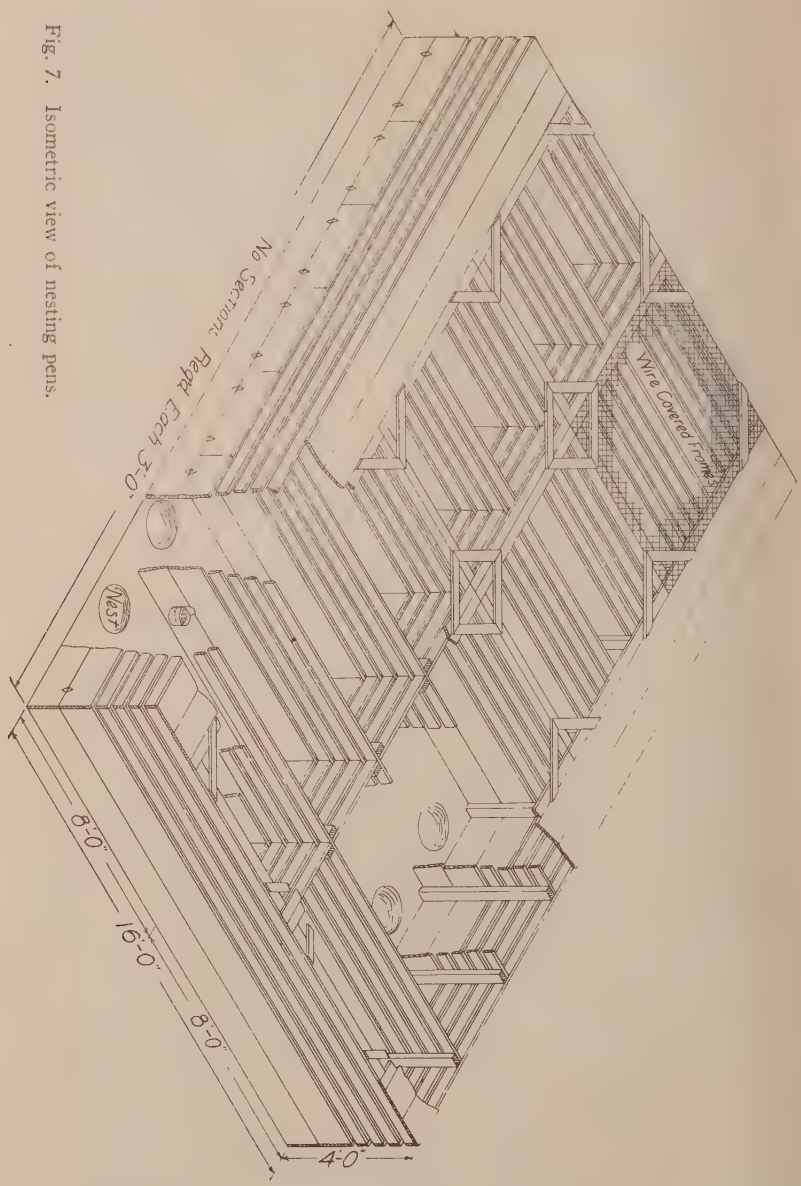


Fig. 7. Isometric view of nesting pens.

SUMMARY

No. of Pieces	Length	Size of Stock	Material	Board Feet
9	16′	2x4	No. 1 Common fir	96
30	16′	1x12	No. 1 Common fir	480
4	12′	1x12	No. 1 Common fir	48
52	16′	1x4	No. 1 Common fir	278
24	12′	1x4	No. 1 Common fir	96
			Total	998

MISCELLANEOUS

16 pair 5″ strap hinges.
48′-1″ mesh poultry netting, 6′ wide.
20 lbs. 8d nails.

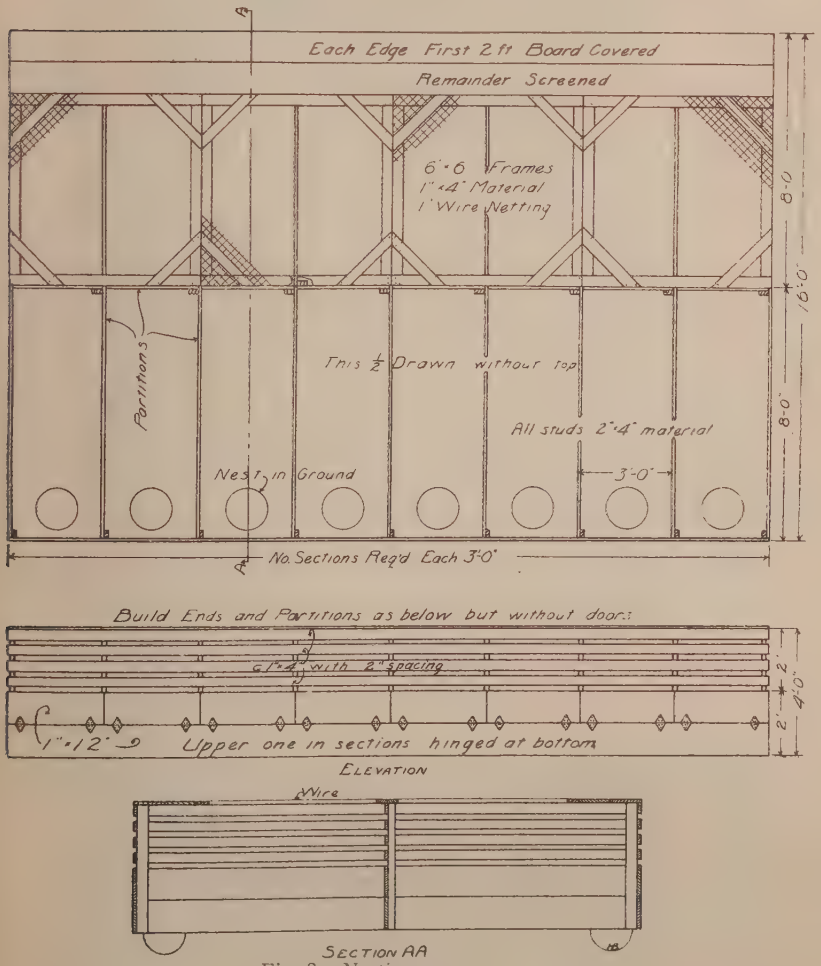


Fig. 8. Nesting pens.

An empty tin can should be fastened to the inside of each pen near the nest. This can will serve as a watering cup for the hen.

Brooder Coop

The brooder coop shown in Figure 9 is built in a gable shape 4 feet square on the bottom and 4 feet high at the peak. The bottom is framed with 2x4s with half-and-half joints at the corners. The up-

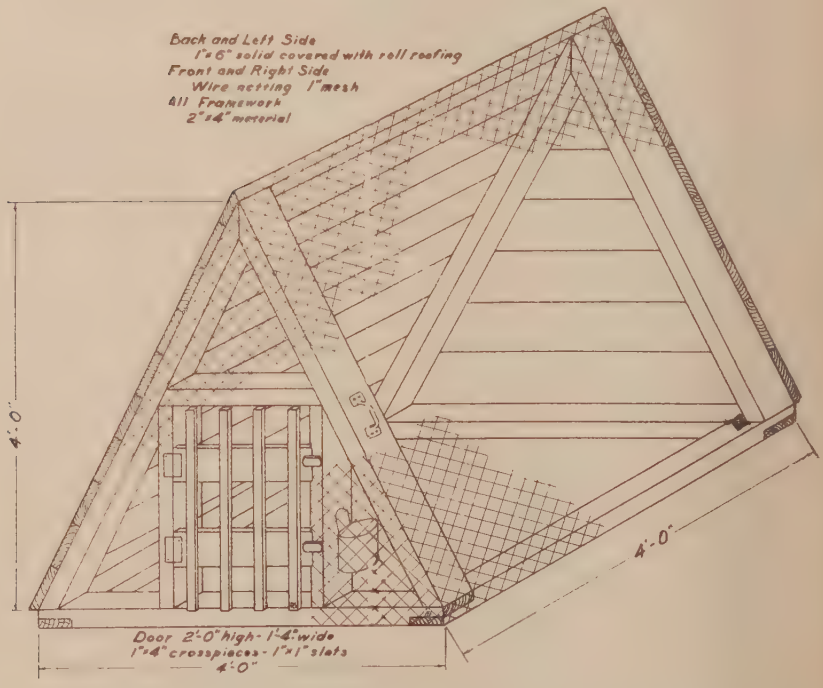


Fig. 9. Brooder coop.

right frames of the coop are toe-nailed to this frame at each end. One side and the back of the coop are covered solidly with 1x6 lumber and rolled roofing so that there will be no wind and rain reaching the turkeys from these surfaces. The front and the other side are covered with poultry netting with 1-inch mesh. A slat door is hung in a frame work at the front end. The door is 2 feet high and 1 foot 4 inches wide. It is made up of 2 pieces of 1x4 to which the hinges are attached and to which are nailed four 1x1 slats. The construction of this coop is shown very clearly in the figure. There will be required:

MATERIAL AS BOUGHT			MATERIAL AS USED		
No. of Pieces	Length	Size of Stock	No. of Pieces	Length	Use made of piece
1	16′	2x4	4	4′	Base
1	10′	2x4	2	4′6″	Frame
1	14′	2x4	5	2–4′6″	Frame and door
				2–2′	Frame and door
				1–1′4″	Frame and door
5	12′	1x6	10	4′	
			8	Bevel cut sheeting	
1	3′	1x4	2	1′4″	Door
1	8′	1x1	4	2′	Door

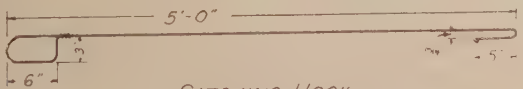
SUMMARY

No. of Pieces	Length	Size of Stock	Material	Board Feet
1	16′	2x4	No. 1 Common fir	11
1	10′	2x4	No. 1 Common fir	7
1	14′	2x4	No. 1 Common fir	9
5	12′	1x6	No. 1 Common fir	30
1	3′	1x4	No. 1 Common fir	1
1	8′	1x1	No. 1 Common fir	1
				59

MISCELLANEOUS

2 hinges, 2″x2″.
7′–1″ mesh poultry netting 4′ wide.
7′ prepared roofing 4′ wide.
2 lbs. 8d nails.

An empty can drinking fountain should be provided in the coop. A couple of handles fastened to the front corners will be convenient for moving the coop.



CATCHING HOOK
Made from No 5 Steel Fencing Wire

Fig. 10

Catching Hook

A satisfactory catching hook may be made of a piece of ¼-inch rod or No. 4 gage wire, 6 feet long. The rod should be bent as shown in Figure 10. Care should be taken that no sharp corners or ends are left where they may break the skin of the birds.

Colony Brooder House

The 10x14 colony brooder house has been planned to furnish proper housing conditions when hover type brooders are used. The size of the house is such that it can be easily moved to new ground. The building is of the studding wall platform type and may be made with permanent skids as shown in Figure 11. The arrangement of the windows and the tight construction of the building make it pos-

sible to control ventilation and temperature to meet the requirements of wide climatic variations. The bill of material for this colony house follows:

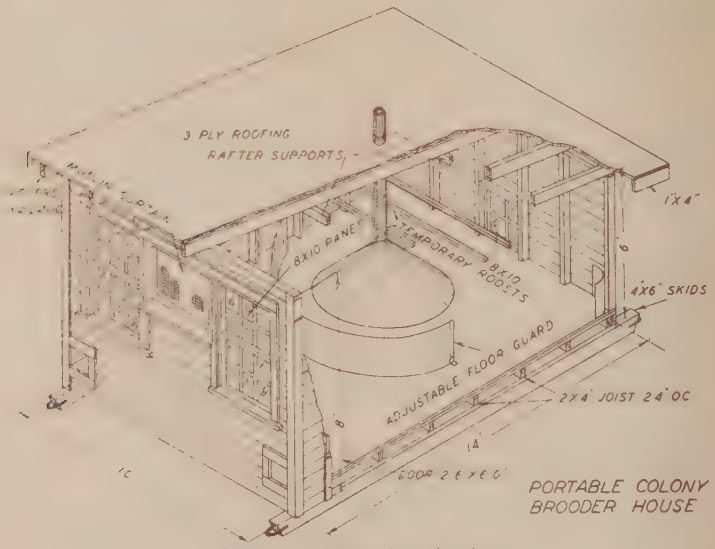


Fig. 11. Colony brooder house.

Colony House 10 ft. x 14 ft.

Bill of Material

Detail of Framing Material

MATERIAL AS BOUGHT			MATERIAL AS USED		
No. of Pieces	Length	Size of Stock	No. of Pieces	Length	Use made of piece
2	16′	4x6	2	16′	Skids
6	16′	2x4	6	10′	Rafters
4	10′	2x4	4	10′	Plates
3	14′	2x4	6	7′	Studs—front wall
3	10′	2x4	6	5′	Studs—rear wall
6	14′	2x4	2	7′3″	Studs—side wall
Notch studs to extend to roof boards			2	5′10″	Studs—side wall
			2	6′9″	Studs—side wall
			2	6′1″	Studs—side wall
			2	6′7″	Studs—side wall
			2	6′4″	Studs—side wall
2	10′	2x4	2	10′	Rafter supports
10	10′	2x4	10	10′	Joists
2	12′	2x4	4	6′	Roost supports
2	10′	2x4	2	10′	Sill
2	14′	2x4	2	14′	Sill
1	8′	2x4	4		Window frame
1	10′	2x6	3		Window sill
1	16′	2x4	3		Door frame
5	10′	2x2	5	10′	Roosts

SUMMARY

No. of Pieces	Length	Size of Stock	Material	Board Feet
2	16′	4x6	No. 1 Common fir	27
1	10′	2x6	No. 1 Common fir	10
9	16′	2x4	No. 1 Common fir	96
11	14′	2x4	No. 1 Common fir	103
2	12′	2x4	No. 1 Common fir	16
26	10′	2x4	No. 1 Common fir	173
5	10′	2x2	No. 1 Common fir	17
			Total for framing material	442
		1x6	No. 1 Siding	370
		1x4	No. 1 Common flooring	175
		1x8	No. 1 Common shiplap	800
		1x4	No. 1 Common pine trim	70
			Total	1045
			Total of lumber	1857

MISCELLANEOUS

6 ½ in. carriage bolts 14 in. long.
1 rim lock door set.
4 8″x10″ 6 light barn sash.
1 8″x10″ 4 light barn sash.
2 rolls 3-ply composition roofing.
2 pair 3″ strap hinges.
2 pair 3″ T-hinges.
1 pair strap hinges, 4″ T door.
12 thumb buttons or window fasteners.
20 lbs. 8d nails.
7 lbs. 16d box nails.
1 roll tar paper.
1 gallon paint.

Permanent Furnace Type Brooder House

The permanent brooder house is a studding walled frame structure on a concrete foundation. The detail of the construction includes the underheat furnace which should be carefully built according to the plans specified. In localities where drainage is difficult, it is advisable to raise the foundation at least 18 inches above the ground level and to fill under the floor with the best material available, preferably coarse gravel. The foundation footings should be extended below the frost line and the fill allowed to settle before placing the concrete floor. Care should be observed in installing the furnace in order that the fire hazard may be reduced to a minimum and in order to secure the best possible heating results. The brooder house illustrated in Figure 12 is equipped with sanitary pens which are included in the bill of materials which follows:

Permanent Furnace Type Brooder House 34 ft. x 16 ft.

Bill of Material

Detail of Framing Material

MATERIAL AS BOUGHT			MATERIAL AS USED		
No. of Pieces	Length	Size of Stock	No. of Pieces	Length	Use made of piece
9	16′	2x4	18	7′6″	Studding—front wall
9	10′	2x4	18	4′8″	Studding—rear wall
3	16′	2x4			Studding—side wall
3	12′	2x4			Studding and
6	14′	2x4			Studding partition
Notch studs to extend up to roof boards instead of as shown on cut, page 42.					
3	6′	2x4	3	6′	Joists
1	10′	2x4	4	2′6″	Window header
1	8′	2x4	2	4′	Door header
4	12′	2x4	4	12′	Plate—front
2	10′	2x4	2	10′	Plate—front
4	12′	2x4	4	12′	Plate—rear
2	10′	2x4	2	10′	Plate—rear
18	18′	2x6	18	18′	Rafters
4	12′	2x4	4	12′	Sills
2	10′	2x4	2	10′	Sills
3	16′	2x4	3	16′	Sills
4	8′	1x4	4	8′	Corner b'd—front
4	6′	1x4	4	5′	Corner b'd—rear
1	16′	2x6	4	4′	Window sills
1	10′	2x6	3	3′	Window sills
3	10′	1x4	6	4′6″	Window trim
1	8′	1x4	3	2′4″	Window trim
4	8′	1x3	8	4′	Curtain frames
4	10′	1x3	12	3′	Curtain frames
1	10′	4x4	6	10′	Yard supports
40	10′	1x4	40	10′	Yard frames
3	12′	1x4	15	2′	Yard frames
2	12′	1x2	15	1′4″	Yard frames
24	10′	1x4	24	10′	Yard floor
6	10′	1x4	24	2′6″	Yard floor
3	10′	1x10	3	10′	Hopper top
6	10′	1x4	6	10′	Hopper sides
3	10′	1x4	3	10′	Hopper bottom
4	10′	1x6	4	10′	Hover sides
2	8′	1x6	4	4′	Hover ends
2	14′	2x4	20	15¼″	Hover frames
2	8′	¼x1	4	4′	Hover strips
4	10′	¼x1	4	10′	Hover strips

SUMMARY

No. of Pieces	Length	Size of Stock	Material	Board Feet
1	10′	4x4	No. 1 Common fir	14
18	18′	2x6	No. 1 Common fir	324
1	16′	2x6	Clear white pine	16
1	10′	2x6	Clear white pine	10
15	16′	2x4	No. 1 Common fir	182
8	14′	2x4	No. 1 Common fir	75
15	12′	2x4	No. 1 Common fir	120
16	10′	2x4	No. 1 Common fir	107
1	8′	2x4	No. 1 Common fir	6

Permanent Furnace Type Brooder House (Continued)

3	6′	2x4	No. 1 Common fir	12
3	10′	1x10	No. 1 Common fir	25
4	10′	1x6	No. 3 Common fir	20
2	8′	1x6	No. 3 Common fir	8
49	10′	1x4	No. 3 Common fir	164
3	10′	1x4	Clear white pine	10
5	8′	1x4	Clear white pine	14
3	12′	1x4	No. 3 Common fir	12
4	6′	1x4	Clear white pine	8
4	8′	1x3	No. 1 Common fir	8
4	10′	1x3	No. 1 Common fir	10
30	10′	1x4	No. 1 Common fir	100
2	12′	1x2	No. 1 Common fir	4
2	8′	¼x1	No. 1 Common fir	
4	10′	¼x1	No. 1 Common fir	
				1249
		1x8	Shiplap, No. 3 common fir	900
		1x8	Drop siding, No. 3 common fir	850
			Total lumber	2999

MISCELLANEOUS

6 8 in.x10 in. 6-light window sash.
2 10 in.x12 in. 4-light window sash.
2 cellar window sash.
12 3 in. window hinges.
120 ft. ½-inch mesh hardware cloth, 30 in. wide.
150 ft. Hexagonal chick wire, 30 in. wide.
1300 brick.
32 ft. iron flu tops.
6 door hinges.
7 rolls roofing.
9 cubic yards concrete (1:2:4 mix.), depending on height of foundation and depth of footing.
2 bundles lath.
40 pounds 8d common nails.
8 pounds 10d common nails.
8 pounds 20d common nails.
3 gallons paint.

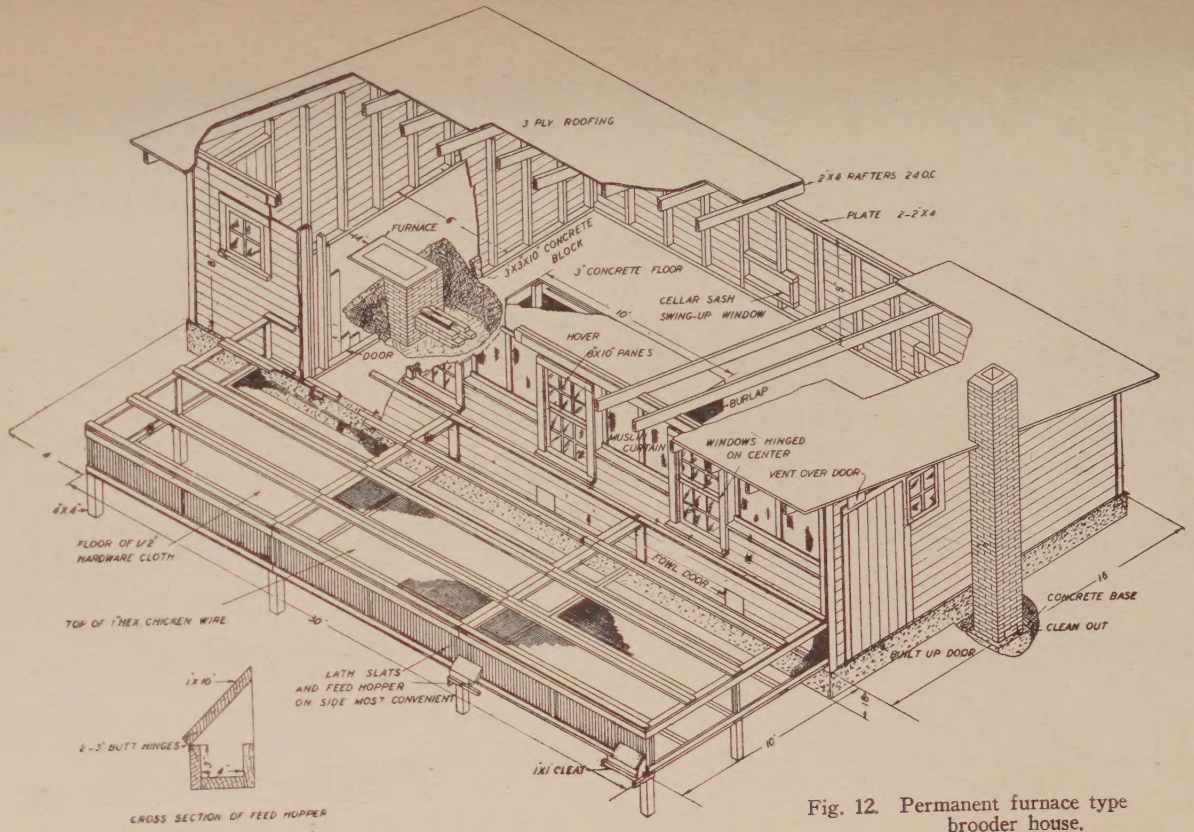


Fig. 12. Permanent furnace type brooder house.

Hanging Cord

Figure 13 shows the arrangement of a wooden lug about 1½ inches square by 4 inches long, fastened to a piece of strong cord or small rope for hanging the turkeys to a rafter or other overhead support for dressing.

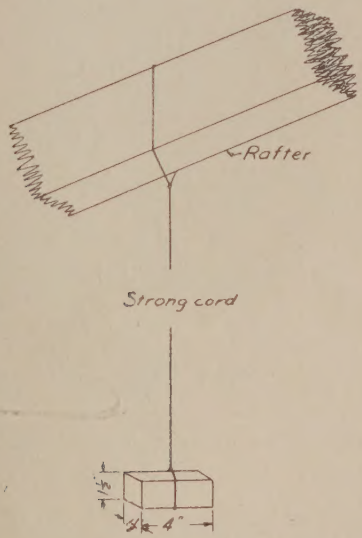


Fig. 13. Hanging cord.

Fig. 14. Small pail with hook for weight.

Weight

A small hook made like the letter "S" may be used to hang a bucket from the turkey's head while bleeding. Figure 14 illustrates such a hook and pail. The hook may be made of No. 8 wire.

Bronze Turkey Hen

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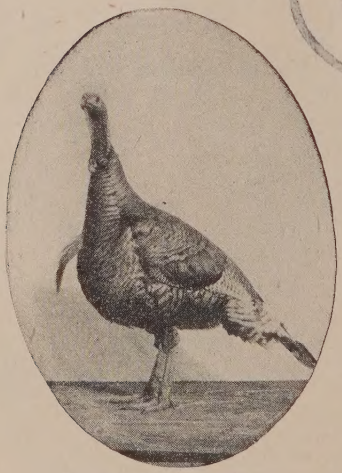

Bronze Turkey Tom